

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A light emitting device comprising:

a light emitting element which includes a transparent substrate and a stack of GaN-based compound semiconductor layers formed on a first surface of the transparent substrate; and

one of a lead frame and a printed circuit board on which said light emitting element is mounted so that said transparent substrate is located on a side of said stack of GaN-based compound semiconductor layers opposite to the one of the lead frame and the printed circuit board;

wherein a second surface of the transparent substrate opposite to said first surface consists of at least one of a quadrangular pyramidal surface, an inverted quadrangular pyramidal surface, a conical surface, an inverted conical surface, a hemispherical surface, an inverted hemispherical surface, a paraboloidal surface, an inverted paraboloidal surface, an obliquely truncated surface having no surface parallel to the first surface, an inverted obliquely truncated surface having no surface parallel to the first surface, a multifaceted obliquely truncated surface having no surface parallel to the first surface, and an inverted multifaceted obliquely truncated surface having no surface parallel to the first surface~~contains a portion inclined with respect to the first surface.~~

2. (cancelled)

3. (currently amended): A light emitting device comprising:

a light emitting element which includes a transparent substrate and a stack of GaN-based compound semiconductor layers formed on a first surface of the transparent substrate;

an optical member which is arranged in contact with a second surface of the transparent substrate opposite to said first surface, wherein said optical member consists of at least one of a quadrangular pyramidal surface, an inverted quadrangular pyramidal surface, a conical surface, an inverted conical surface, a hemispherical surface, an inverted hemispherical surface, a paraboloidal surface, an inverted paraboloidal surface, an obliquely truncated surface having no surface parallel to the first surface, an inverted obliquely truncated surface having no surface parallel to the first surface, a multifaceted obliquely truncated surface having no surface parallel to the first surface, and an inverted multifaceted obliquely truncated surface having no surface parallel to the first surface; and

one of a lead frame and a printed circuit board on which said light emitting element is mounted so that the transparent substrate is located on a side of the stack of GaN-based compound semiconductor layers opposite to the one of the lead frame and the printed circuit board.

4. (original): A light emitting device according to claim 3, wherein said optical member has a function of a sealing package which seals said light emitting element.

5. (cancelled)

6. (cancelled)

7. (withdrawn): A process for producing a light emitting device, comprising the steps of:

(a) applying a resist to a first surface of a transparent substrate located opposite to a stack of GaN-based compound semiconductor layers, where the stack of GaN-based compound semiconductor layers is formed on a second surface of the transparent substrate opposite to the first surface, and the stack of GaN-based compound semiconductor layers and the transparent substrate constitute a light emitting element;

(b) shaping said first surface of the transparent substrate by grayscale exposure and dry etching so that the first surface of the transparent substrate contains a portion inclined with respect to said second surface of the transparent substrate; and

(c) mounting said light emitting element on one of a lead frame and a printed circuit board so that the transparent substrate is located on a side of said stack of GaN-based compound semiconductor layers opposite to the one of the lead frame and the printed circuit board.

8. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board; and

a light emitting element, the light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface, and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate comprises a quadrangular pyramidal surface or an inverted quadrangular pyramidal surface.

9. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board; and

a light emitting element, the light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface, and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate comprises a conical surface or an inverted conical surface.

10. (new): A light emitting device comprising:
one of a lead frame and a printed circuit board; and
a light emitting element, the light emitting element comprising:
a transparent substrate having a first surface and a second surface opposite to the first surface, and
a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;
wherein the second surface of the transparent substrate comprises a hemispherical surface or an inverted hemispherical surface.

11. (new): A light emitting device comprising:
one of a lead frame and a printed circuit board; and
a light emitting element, the light emitting element comprising:
a transparent substrate having a first surface and a second surface opposite to the first surface, and
a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate comprises a paraboloidal surface or an inverted paraboloidal surface.

12. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board; and

a light emitting element, the light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface, and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate consists of at least one of an obliquely truncated surface, an inverted obliquely truncated surface, a multifaceted obliquely truncated surface, and an inverted multifaceted obliquely truncated surface, and wherein the second surface does not include any surface parallel to the first surface.

13. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member arranged in contact with the second surface of the transparent substrate, wherein said optical member comprises a quadrangular pyramidal surface or an inverted quadrangular pyramidal surface.

14. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member arranged in contact with the second surface of the transparent substrate, wherein said optical member comprises a conical surface or an inverted conical surface.

15. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member arranged in contact with the second surface of the transparent substrate, wherein said optical member comprises a hemispherical surface or an inverted hemispherical surface.

16. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member arranged in contact with the second surface of the transparent substrate, wherein said optical member comprises a paraboloidal surface or an inverted paraboloidal surface.

17. (new): A light emitting device comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member having a first surface arranged in contact with the second surface of the transparent substrate, and a second surface opposite to the first surface, wherein the second surface of said optical member consists of at least one of an obliquely truncated surface, an inverted obliquely truncated surface, a multifaceted obliquely truncated surface, and an inverted multifaceted obliquely truncated surface, and wherein the second surface of the optical member does not include any surface parallel to the first surface of the transparent substrate.

18. (new): A light emitting device, comprising:

one of a lead frame and a printed circuit board; and

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate consists of one or more of a plurality of quadrangular pyramids, a plurality of inverted quadrangular pyramids, a plurality of conical shapes, a plurality of inverted conical shapes, a plurality of hemispherical shapes, a plurality of inverted hemispherical shapes, a plurality of paraboloidal shapes, a plurality of inverted paraboloidal shapes, a plurality of obliquely truncated shapes, a plurality of inverted obliquely truncated shapes, a plurality of multifaceted obliquely truncated shapes, and a plurality of inverted multifaceted obliquely truncated shapes.

19. (new): A light emitting device, comprising:
- one of a lead frame and a printed circuit board;
- a light emitting element comprising:
- a transparent substrate having a first surface and a second surface opposite to the first surface and
- a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and
- an optical member arranged in contact with the second surface of the transparent substrate, wherein said optical member consists of one or more of a plurality of quadrangular

pyramids, a plurality of inverted quadrangular pyramids, a plurality of conical shapes, a plurality of inverted conical shapes, a plurality of hemispherical shapes, a plurality of inverted hemispherical shapes, a plurality of paraboloidal shapes, a plurality of inverted paraboloidal shapes, a plurality of obliquely truncated shapes, a plurality of inverted obliquely truncated shapes, a plurality of multifaceted obliquely truncated shapes, and a plurality of inverted multifaceted obliquely truncated shapes.

20. (new): A light emitting device, comprising:

one of a lead frame and a printed circuit board; and

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board;

wherein the second surface of the transparent substrate has no surface parallel to the first surface.

21. (new): A light emitting device, comprising:

one of a lead frame and a printed circuit board;

a light emitting element comprising:

a transparent substrate having a first surface and a second surface opposite to the first surface and

a stack of GaN-based compound semiconductor layers formed on the first surface of the transparent substrate, wherein the stack of GaN-based semiconductor layers are mounted on the lead frame or circuit board; and

an optical member having a first surface arranged in contact with the second surface of the transparent substrate, and a second surface, opposite to the first surface, wherein the second surface of said optical member has no surface parallel to the first surface of the transparent substrate.